

REMARKS

Claims 1-30 are currently pending in the subject application and are presently under consideration. In an Office Action dated February 22, 2008, all claims were rejected. In the present response, Applicants cancel claims 16 and 19, and traverse the rejections as follows.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Drawings Allowed

The drawings filed on February 26, 2004 are accepted.

II. Rejection of Claims 1, 8, 12-21, 26, 29 and 30 Under 35 U.S.C. §103(a)

Claims 1, 8, 12-21, 26, 29 and 30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shou *et al.* (US 6,038,250) in view of Ibanez-Meier *et al.* (US 5,898,362). Regarding claims 1, 15, 18, and 21, it was alleged that Shou *et al.* discloses a transmission method comprising: encoding both first and second nominally orthogonal polarization signals with a same long code in Figure 3 (signals supplied to multipliers 16 and 17), in column 7, lines 50-54, and in column 6, lines 24-32. It was further alleged that Shou *et al.* teaches transmitting the long-encoded first and second nominally orthogonal polarization signals to at least one destination via output circuit 26. However, it was admitted that Shou *et al.* fails to teach transmitting the signals from respective first and second transmission sources. Finally, it was alleged that Ibanez-Meier *et al.* teaches transmitting the signals from respective first and second transmission sources and that it would have been obvious for one skilled in the art to combine the two references to arrive at Applicants' claimed subject matter.

Applicants do not believe that Shou *et al.* teaches a transmission method, system, or computer program product comprising "encoding both first and second nominally orthogonal polarization signals with a same long code" as recited in claims 1, 15, 18, and 21.

First and foremost, Shou *et al.* fails to teach or suggest a *transmission* method, system, or computer program product at all. Shou *et al.* teaches a *receiver*, not a transmitter. Figure 3, referred to in the Office Action, illustrates a block diagram of a "signal reception circuit" of a mobile station. Likewise, Shou *et al.* discusses elements of a *receiver* in column 7, lines 50-54,

and in column 6, lines 24-32. Applicants' claims, on the other hand, are drawn to a method of transmission, a transmitter, or the like.

Second, Shou *et al.* fails to teach or suggest "encoding both first and second nominally orthogonal polarization signals with a same long code" as claimed by Applicants. It was alleged that Shou *et al.* teaches this feature in Figure 3 (signals supplied to multipliers 16 and 17), in column 7, lines 50-54, and in column 6, lines 24-32. As mentioned above, Figure 3 illustrates a block diagram of a receiver, not a transmitter. The signals being applied to multipliers 16 and 17 are not long codes. Rather, they are simply a cosine waveform and a sine waveform generated by oscillator 14 and applied to mixers 16 and 17 to shift the received In-phase (I) and Quadrature (Q) signals to baseband. This process is disclosed in column 5, line 62 through column 6, line 10. There is no mention that the signals are long codes or that the received signals are being "encoded". For these reasons alone, the rejection to claims 1, 15, 18, and 21 should be withdrawn because Shou *et al.* fails to teach the encoding of two nominally orthogonal polarization signals with a same long code.

Third, Shou *et al.* fails to teach encoding "first and second *nominally orthogonal polarization signals*" by a same long code. There is no mention in Shou *et al.* whatsoever of two signals being orthogonally polarized to each other, i.e., the direction in which an electrical field of an electro-magnetic field propagates. An example of polarization includes left and right polarization of two transmission signals, commonly used in satellite communication systems.

Finally, it was alleged that Shou *et al.* teaches transmitting the long-encoded first and second nominally orthogonal polarization signals to at least one destination via output circuit 26. Applicant do not believe that output circuit 26 is a transmitter, transmission circuit, or the like and, therefore, Shou *et al.* fails to teach transmitting the long-encoded first and second nominally orthogonal polarization signals to at least one destination. Output circuit 26 is described as follows:

"Rake synthesizer 25 synthesizes...the phase-corrected output of each path...and outputs the synthesized output to the output circuit 26. The output of the output circuit 26 is *supplied* to a subsequent decision circuit or the like not shown in the drawing, which de-modulates and processes the signal." (Shou *et al.*, column 6, lines 38-45)

Applicants do not consider *supplying* a signal from output circuit 26 to a subsequent decision circuit is the equivalent of *transmitting* a signal to at least one destination.

For all of the reasons stated above, Shou *et al.* fails to teach or suggest a transmission method, system, or computer program product that “encod[es] both first and second nominally orthogonal polarization signals with a same long code”. Therefore, the combination of Shou *et al.* fails to teach each and every element of Applicants’ claimed subject matter, and the rejections to claims 1, 15, 18, and 21 should be withdrawn.

Regarding claims 8 and 26, it was alleged that Shou *et al.* teaches a method of demodulating first and second nominally orthogonal polarization signals in column 6, lines 40-45 comprising: receiving encoded first and second nominally orthogonal polarization signals (in column 6, lines 40-45) and applying the same long code to the first and second nominally orthogonal polarization signals (in column 6, line 61 to column 7, line 10). It was admitted that Shou *et al.* fails to explicitly teach transmitting the signals from respective first and second transmission sources, but that Ibanez-Meier teaches this feature in Figure 1 (users 30 and 40). Therefore, it was alleged that one skilled in the art would have combined the cited references to arrive at Applicants’ claimed subject matter.

Applicants do not believe that Shou *et al.* teaches “receiving encoded first and second nominally orthogonal polarization signals” in column 6, lines 40-45, or anywhere else in Shou *et al.* Column 6, lines 40-45, describe rake receiver 25 that synthesizes the output of each path received from phase correction means 24 and supplies the synthesized output to output circuit 26. There is no mention of two nominally orthogonal polarization signals in this passage from Shou *et al.* Nor is there any mention of using orthogonally polarized signals anywhere in Shou *et al.* The two signals from phase correction means 24 are simply In-phase (I) and Quadrature (Q) signals typically used in BPSK modulation schemes. From Shou *et al.*:

“The multiplier 16 multiplies the intermediate frequency signal received from the distributor 13 by the oscillation output received from the oscillator 14 and outputs a base band signal R_i which is an in-phase component (I component) and is output via a low-pass filter 62. The multiplier 17 multiplies the intermediate frequency signal received from the distributor 13 by the output (sin.omega.t) of the phase shift circuit 15, and outputs a base band signal R_q

which is a quadrature component (Q component). In this way, the received signal is quadrature-detected.” (*Shou et al.*, column 6, lines 1-10)

From the above passage and related explanation, it is clear that *Shou et al.* fails to teach the use of nominally orthogonal polarization signals and, therefore, the combination of *Shou et al.* with Ibanez-Meier fails to teach or suggest every element of Applicants’ claimed subject matter. For this reason alone, the rejection to claims 8 and 26 should be withdrawn.

In addition to failing to teach or suggest the above claim feature, neither *Shou et al.* nor Ibanez-Meier teach or suggest applying a same long code to nominally orthogonal polarization signals, as claims 8 and 26 recite. It was alleged that *Shou et al.* teaches this feature in column 6, line 61 to column 7, line 10. Applicants respectfully disagree with this characterization of *Shou et al.*

The cited paragraphs from *Shou et al.* describe the block diagram of Figure 3. In particular, the functions of long code search circuit 27 and PN generator 19 are discussed with respect to how a mobile device transitions between base stations. As shown in Figure 3, long code search circuit 27 comprises a **single output** that is provided to PN generator 19. PN generator, in turn, generates a **short code** that is supplied to complex-type matching filter 18, i.e., to the received I and Q signals. From *Shou et al.*:

“The PN generator 19 is controlled by the long code synchronization timing determiner 4 and the long code identifier 6. At the time of the initial search, the **PN generator 19 outputs the short code #0 that is common to the control channels of all base stations**. After the long code synchronization timing has been determined, each segment having N chips, which is a portion of the spread code sequence synthesized from the short code #0 and one of the long codes #i unique to each base station, is sequentially loaded and output.” (*Shou et al.*, column 6, line 61 to column 7, line 1, *emphasis added*)

From the above cited passage and accompanying explanation, it is clear that *Shou et al.* does not teach a long code being applied to two nominally orthogonal polarization signals. Ibanez-Meier, likewise, fails to teach such a feature. Therefore, because neither *Shou et al.* nor Ibanez-Meier teach applying a long code to two nominally orthogonal polarization signals, the rejections to claims 8 and 26 under 35 U.S.C. §103(a) should be withdrawn. Applicants further assert that

claims 12-14, 17, 20, 29, and 30 are likewise allowable as being dependent upon allowable claims, namely claims 8 and 26.

III. Rejection of Claims 2-7, 9-11, 22-25, 27 and 28 Under 35 U.S.C. §103(a)

Claims 2-7, 9-11, 22-25, and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shou *et al.* and Ibanez-Meier as applied to claims 1 and 21 above, and further in view of Hwang *et al.* (US 2002/0115473). It was alleged that Shou *et al.* and Ibanez-Meier teach all of the elements of claims 1 and 21, and that one skilled in the art would have combined these two references with Hwang *et al.* to obviate each of the above-cited claims.

Applicants do not believe that the combination of Shou *et al.* and Ibanez-Meier teach or suggest all of the claim features of claims 1 and 21, as explained above. Therefore, Applicants believe that claims 2-7, 9-11, 22-25, 27, and 28 are likewise allowable as being dependent on allowable claims, namely claims 1 and 21.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP825US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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